

Atty. Docket No. 404982

REMARKS/ARGUMENTS

The amendments and remarks hereto attend to all outstanding issues in the pending office action of 5 October 2005. Claims 1-7 and 11-19 remain pending in this application. Claims 1-3, 6, 7 and 11-19 are amended. Claims 8-10 are cancelled herewith without prejudice. Claims 20-22 are new.

In the Claims

Claim 1 is amended to add the word "workpiece" for antecedent basis; to eliminate the term "slow tool servo assembly"; to clarify that the spindle assembly rotates about a "spindle axis," consistent with the use of this term in the specification as filed at paragraph [0022]; to describe "a rotary encoder" as being part of the spindle assembly, as supported in the specification as filed at paragraph [0019]; to introduce the terms "x-axis" and "z-axis" for antecedent basis; to utilize the term "spindle axis" for consistency; to include and describe "a table" as supported in the specification as filed at paragraph [0019] and by claim 3 as filed; to remove the limitation concerning rotational speed of the spindle assembly and the step of positioning the tool in contact with the workpiece; and to clarify language describing the step of oscillating.

Claim 2 is amended to clarify antecedence and wording.

Claim 3 is amended to clarify antecedence and to remove limitations related to "the table."

Claim 6 is amended to remove a misspelled word, to clarify that the spindle assembly rotates about a "spindle axis," consistent with the use of this term in the specification as filed at paragraph [0022]; to include "a rotary encoder" as being part of the spindle assembly, as supported in the specification as filed at paragraph [0019]; to introduce the terms "x-axis" and "z-axis" for antecedent basis; to clarify that the x-axis is orthogonal to the spindle axis and that the z-axis is parallel to the spindle axis, consistent with the specification as filed at paragraph [0019]; to include "a table" as supported in the specification as filed at paragraph [0019] and by claims 3 and 16 as filed; and to remove the limitation concerning "an angular rotation sensor."

Claim 7 is amended to clarify antecedence.

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Claims 8-10 are cancelled without prejudice.

Claim 11 is amended to depend from claim 6 and to remove certain limitations relative to "the table."

Claims 12 and 13 are amended to depend from claim 6 and to clarify that the "tool" is a diamond turning machine or a grinding machine, respectively, consistent with the specification as filed at paragraph [0019].

Claim 14 is amended to remove redundancy and to clarify antecedence.

Claim 15 is amended to remove a misspelled word, to clarify that the spindle assembly rotates about a "spindle axis," consistent with the use of this term in the specification as filed at paragraph [0022]; to describe "a rotary encoder" as being part of the spindle assembly, as supported in the specification as filed at paragraph [0019]; to introduce the terms "x-axis" and "z-axis" for antecedent basis; to clarify that the x-axis is orthogonal to the spindle axis and that the z-axis is parallel to the spindle axis, consistent with the specification as filed at paragraph [0019]; to include and describe "a table" as supported in the specification as filed at paragraph [0019] and by claims 3 and 16 as filed; to remove the limitation concerning "an angular rotation sensor"; and to improve wording related to "a processor."

Claim 16 is amended to remove limitations related to "the table" and to clarify that the processor determines an angle about the b-axis, consistent with the specification as filed at paragraph [0025].

Claims 17 and 18 are amended to depend from claim 15 and to clarify that the "tool" is a diamond turning machine or a grinding machine, respectively, consistent with the specification as filed at paragraph [0019].

Claim 19 is amended to clarify grammar and antecedence, and to clarify that "the processor controls the angle to maintain the substantially perpendicular relationship," consistent with the specification as filed at paragraph [0025].

New claims 20 - 22 are supported by FIG. 1 as filed and by the specification as filed at paragraph [0019]

No new matter is added to the application through any of the claim amendments.

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Response to Office Action

The following paragraphs follow the order of the paragraphs in the Office Action mailed 5 October 2005 in this application.

Claim Rejections - 35 U.S.C. §112

Claim 6 stands rejected under 35 U.S.C. §112, second paragraph, as having insufficient antecedent basis for "the limitation 'rotary table' in line 4." Office Action, page 2. Applicant points out that claim 6, before or after amendment, does not include the words "rotary table," and believes the Examiner meant to direct this rejection to claim 14. Claim 14 is amended, *inter alia*, to strike the word "rotary" and thus include "a table" which has antecedent basis in claim 6 (as amended). Reconsideration and withdrawal of the rejection under 35 U.S.C. §112, second paragraph, is requested.

Claim Rejections ~ 35 USC §102

To anticipate a claim, the reference must teach every element of the claim and "the identical invention must be shown in as complete detail as is contained in the ... claim." *MPEP 2131* citing *Verdegaal Bros. V. Union Oil Co. of California*, 814 F.2d 628, 2 USPQ2d 1051 (Fed. Cir. 1987) and *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913 (Fed. Cir. 1989).

Claims 6, 9, 10, 14 and 15 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,343,206 to Douglass et al. ("Douglass"). Applicant respectfully submits that claims 6, 9, 10, 14 and 15, as amended, are not anticipated by Douglass. For example, Applicant's claim 6, as amended, requires the following elements:

- (a) a spindle assembly having a spindle for holding the workpiece, the spindle being selectively rotatable about a spindle axis, the spindle assembly having a rotary encoder to provide angular position feedback of the workpiece; and
- (b) a tool assembly having
 - (b1) a tool for contacting the workpiece,
 - (b2) a first x-axis linear drive for moving said tool assembly in an x-axis orthogonal to the spindle axis,

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(b3) a second z-axis linear drive for moving said tool assembly in a z-axis parallel to the spindle axis, and

(b4) a table that is movable along the x-axis and the z-axis through the first x-axis linear drive and the second z-axis linear drive, the table being rotatable about a table axis, the tool being mounted to the table.

Douglass does not teach element (b4) of claim 6, that is, "a table that is movable along the x-axis and the z-axis through the first x-axis linear drive and the second z-axis linear drive, the table being rotatable about a table axis, the tool being mounted to the table." Since Douglass does not teach every element of claim 6, Applicant submits that Douglass does not anticipate claim 6, and requests reconsideration and withdrawal of the rejection of claim 6 under 35 U.S.C. §102(b). Claims 9 and 10 are cancelled. Claim 14 depends directly from claim 6 and benefits from like arguments.

Like claim 6, claim 15 also requires "a table that is movable along the x-axis and the z-axis through the first x-axis linear drive and the second z-axis linear drive, the table being rotatable about a table axis, the tool being mounted to the table." As noted with respect to claim 6, Douglass does not teach such a table. Since Douglass does not teach every element of claim 15, Applicant submits that Douglass does not anticipate claim 15, and requests reconsideration and withdrawal of the rejection of claim 15 under 35 U.S.C. §102(b).

Claim Rejections – 35 USC §103(a)

The following is a quotation from the MPEP setting forth the three basic criteria that must be met to establish a *prima facie* case of obviousness.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP §2142, citing *In re Veeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Claims 1-5, 7 and 8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Douglass. Applicant respectfully submits that claims 1-5, 7 and 8, as amended, are not unpatentable over Douglass. For example, similar to claim 6 discussed above, claim 1 as

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amended requires, *inter alia*, a step of "providing... a table, rotatable about a table axis, for manipulating an angle of the tool." Douglass does not teach or suggest providing a table for manipulating an angle of the tool; to the contrary, Douglass shows "a conventional tool holder 30 and metal-working tool 32 for machining the surface 12 of the workpiece 10 upon contact therewith." Douglass, col. 3, lines 58-61.

Since Douglass does not teach or suggest every element of claim 1, Applicant submits that Douglass does not anticipate claim 1, and requests reconsideration and withdrawal of the rejection of claim 1 under 35 U.S.C. §103(a).

Claims 2-5 depend from claim 1, and benefit from like arguments; however these claims include other features that are patentable over the prior art. For example, claim 3 as amended includes a step of "generating a command signal to rotate the table to maintain perpendicularity of the tool relative to the workpiece surface." Since Douglass does not teach or suggest providing a table for manipulating an angle of the tool, as noted with respect to claim 1, Douglass also does not teach or suggest generating a command signal to rotate such a table. Since Douglass does not teach or suggest every element of claim 3, Applicants request reconsideration and withdrawal of the rejection of claim 3; Applicants further request reconsideration and withdrawal of the rejection of claims 2-5 under 35 U.S.C. §103(a) because they depend from an allowable base claim.

Claim 7 depends from claim 6, argued above as allowable, and benefits from like arguments. Reconsideration and withdrawal of the rejection of claim 7 under 35 U.S.C. §103(a) is requested. Claim 8 is cancelled.

Allowable Subject Matter

Applicant thanks the Examiner for pointing out the allowability of claims 11-13 and 16-19 if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant believes that the amendments to base claims 1, 6 and 15 result in patentable subject matter being present in all currently pending claims, including claims 11-13 and 16-19.

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Conclusion

In view of the above Amendments and Remarks, Applicant has addressed all issues raised in the Office Action dated 5 October 2005, and respectfully solicits a Notice of Allowance. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

The fee of \$225 for a two-month extension of time for a small entity is enclosed herewith. Since the newly added claims are equal in number to cancelled claims, Applicant believes no other fees are currently due, however, if any fee is deemed necessary in connection with this Amendment and Response, please charge Deposit Account No. 12-0600.

Respectfully submitted,

LATHROP & GAGE L.C.

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